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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/674,796	10/01/2003	Hiroki Tawa	107348-00372	4154

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EXAMINER

WRIGHT, ANDREW D

ART UNIT	PAPER NUMBER
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3617

DATE MAILED: 07/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/674,796

Applicant(s)

TAWA ET AL.

Examiner

Andrew Wright

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 April 2005.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1 is/are rejected.
7) ☒ Claim(s) 2-6 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sato et al. (US 6,155,895) in view of Kunze et al. (US 6,595,164), Okada et al. (US 5,497,734), and Batzill (US 2002/0189558). Sato shows a water cooled engine with vertical crankshaft, connecting rods, pistons, cylinders, cylinder block, cylinder head, combustion chambers, cylinder block water jacket, cylinder head water jacket and cooling water pump. Such is well known and common in the art. Sato discloses that the pump supplies water to the exhaust manifold, then to cylinder block jacket, then to the cylinder head jacket (column 9, lines 40-67, and fig 9). The cooling water passes from the block jacket to the head jacket via gasket faces of the block and head. The block jacket and head jacket are substantially independent of each other. Sato does not disclose left and right branches from a block jacket supply passage that communicate with the cylinder head jacket via gasket faces of the block and head. Kunze shows a cooling system for an internal combustion engine. Kunze demonstrates the equivalence of serial and parallel flow between the head jacket and block jacket (figs 1-2). Kunze does not disclose the plumbing of how the parallel flow is achieved. Okada shows a water cooled engine with two cylinder block water jackets and two cylinder head water

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jackets. Looking at only one side of the engine, there is a cylinder block water jacket (26) and a cylinder head water jacket (32). The block jacket and head jacket are substantially independent of each other. Coolant is provided in parallel to the block jacket and head jacket. Okada discloses that the pump (23) supplies cooling water to the bank center (not numbered). The bank center constitutes a supply passage for the block jacket (26) because the bank center supplies water to the block jacket (26) through inlet port (28). A branch (not numbered) branches off of the bank center to supply cooling water to the head jacket (32) via port (34). Okada shows (figs 2-3) that the inlet of the head jacket (32) is at the block-head interface. Okada teaches that parallel flow of the block jackets and head jackets provides improved cooling, thereby reducing frictional loss between the pistons and the cylinder walls, assuring a good combustion of air-fuel mixture in the engine, and consequently improving fuel consumption and reducing exhaust emissions (column 8, lines 35-42). Based upon the suggestion of improvement of Okada and the teaching of equivalence of Kunze, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Sato by using parallel flow instead of serial flow between the head and block jackets by providing a separate passage for supplying coolant to the head jacket. The motivation would be to improve the cooling characteristics of the engine.

3. Still regarding claim 1, Sato discloses that the cooling water passes from the block jacket to the head jacket via gasket faces of the block and head. And Okada shows the branch passage for the head jacket passes through the gasket face of the

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block and head. Therefore it would have been obvious to pass the branch passage added to Sato through the gasket face of the block and head.

4. Still regarding claim 1, both Sato and Okada only show the coolant passages in schematic view. Neither shows the actual detail of the structures. Neither shows a pair of passages that supply coolant to the head jacket. Batzill shows a water cooled engine with two cylinder block water jackets and two cylinder head water jackets. Looking at only one side of the engine, there is a cylinder block water jacket and a cylinder head water jacket. The block jacket and head jacket are substantially independent of each other. Coolant is provided in parallel to the block jacket and head jacket. The pump supplies coolant to the block jacket via pipe (32). Pipe (32) supplies coolant to the block jacket via passage (36). Pipe (32) supplies coolant to the head jacket via passage (38). Numerous branching passages (47) are shown to provide coolant from the supply passage to the head jacket along the length of the head jacket. It is well known and common in the art to provide plural passages for carrying coolant for the purpose of evenly cooling the cylinder head. Therefore it would have been obvious to further modify Sato by providing at least of pair of branching passages to supply coolant to the cylinder head jacket. The motivation would be to provide even cooling for the cylinder head.

5. Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15. It is noted that the Batzill reference is a national stage entry of a published international application with a publication date of November

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8, 2001. A copy of the international publication (WO 01/83959 A1) is cited in this Office Action.

Allowable Subject Matter

6. Claims 2-6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

7. Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication should be directed to examiner Andrew D. Wright at telephone number 571-272-6690. The examiner can normally be reached Monday-Friday from 9:00 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, S. Joe Morano, can be reached at 571-272-6684. The fax number for official communications is 703-872-9306. The fax number directly to the examiner for unofficial communications is 571-273-6690.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Andrew D. Wright
Patent Examiner
Art Unit 3617

ANDREW D. WRIGHT
PRIMARY EXAMINER

AW 6/21/05